

ENERGY MARKET

Information Note

*Procedures and Principles Regarding Resource
Based Price Limits*

30 September 2022

Factors Affecting the Emergence of Resource Based Price Limits Application

- Due to the increase in global commodity prices following the COVID-19 period, the rise in the USD/TL rate, the recovery in electricity demand, and low hydroelectricity generation caused upward trend in electricity generation costs both globally and locally, and a rapid increase was observed in market clearing prices. Due to this increase in costs, end-user electricity tariffs have been increased at a high rate as we enter 2022.
- In the process following the invasion of Ukraine initiated by Russia at the end of February 2022, prices of fossil fuels, especially natural gas, coal, and oil, increased rapidly again. This situation, combined with the limited amount of water in hydroelectric power plants, caused the electricity generation costs in our country to rise again and the prices in the spot markets increased very rapidly, especially in February and March.
- Due to the aforementioned cost increases, the need to adjust the cash flows of the designated retail companies has arisen by increasing the electricity tariffs again. However, at that point, it was clear that consumers, who were already suffering from high inflation, would experience economic difficulties if their electricity tariffs were increased further. For this reason, an effort was made to solve the problem without increasing electricity tariffs as much as possible.
- The solution that was brought to the market was a new resource-based maximum limit application. In this context, resources with relatively lower costs paid back the difference between the determined maximum settlement price and the market clearing price or bilateral agreement price to the system operator, and this amount has been collected as support cost. This support amount collected every month was reflected as a production support amount to the owners of high-cost production facilities, in case of need, in order to prevent possible supply problems. The remaining and the major amount of this support fee was distributed to the designated retail companies and thus consumers who purchase electricity from the regulated tariff have been supported.
- With the effect of this method, renewable and lignite power plants were the most negatively affected power plants. On the other hand, the mechanism reached an achievement to some extent to find a solution for the cash flows of the designated retail companies. Therefore, the mechanism is extended until the end of March 2023 from its initial deadline (the end of September 2022) with the recent announcement made by EMRA.

Facilities Exempted from the Maximum Settlement Price Application

1. Power plants with ongoing purchase guarantees under YEKDEM
2. Power plants under the EÜAŞ Portfolio
3. Power plants that have made a purchase agreement with EÜAŞ
4. Net sale positions of the generation facilities in the Futures Electricity Market before **March 8, 2022**

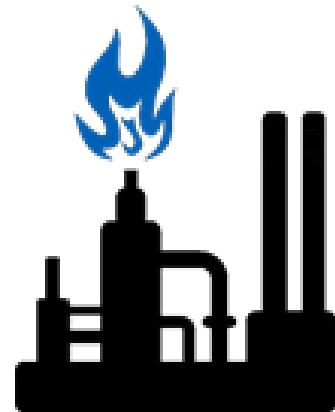
- Within the scope of the maximum settlement price application, three types of resources were defined and the maximum settlement prices for April 2022 were determined for these resource types. It has been decided to update the maximum settlement prices every month according to the determined formula. The different resource types and prices for April were as follows:

Resource Based Maximum Settlement Prices for April 2022

1. Imported Coal Power Plants – 2,500 TL/MWh

2. Natural Gas, Fuel Oil, Naphtha, LPG and Diesel Fuel Power Plants – 2,500 TL/MWh

3. Other Power Plants (Renewable and Domestic Coal) - 1,200 TL/MWh



- In response to these determined prices, the maximum price limit for the Day-Ahead and Balancing Power Market has been determined as 2,500 TL/MWh.
- Accordingly, the Day-Ahead Market maximum price formula, which previously applied, has also been repealed. These determined amounts only change with the announcements made by the regulatory board's decision.

Initial Applied Market Based Maximum Prices

1. Day Ahead Market – 2,500 TL/MWh

2. Balancing Power Market - 2,500 TL/MWh

Monthly Settlement Price Formula for Imported Coal Power Plants

$$AUF_İthal_t = AUF_İthal_0 * [(0.031 * \frac{\ddot{ÜFE}_t}{\ddot{ÜFE}_0}) + (0.107 * \frac{KUR_t}{KUR_0}) + (0.846 * \frac{API2_t}{API20} * \frac{KUR_t}{KUR_0}) + (0.016 * \frac{İLETİM_t}{İLETİM_0})]$$

Monthly Settlement Price Formula for Natural Gas Power Plants

$$AUF_DG_t = AUF_DG_0 * [(0.016 * \frac{\ddot{ÜFE}_t}{\ddot{ÜFE}_0}) + (0.058 * \frac{KUR_t}{KUR_0}) + (0.902 * \frac{BOTAŞ_{Ft}}{BOTAŞ_{F0}}) + (0.003 * \frac{\ddot{ÖTV}_t}{\ddot{ÖTV}_0}) + (0.021 * \frac{İLETİM_t}{İLETİM_0})]$$

Monthly Settlement Price Formula for Other Power Plants

$$AUF_Diğer_t = AUF_Diğer_0 * [(0.3 * \frac{\ddot{ÜFE}_t}{\ddot{ÜFE}_0}) + (0.6 * \frac{KUR_t}{KUR_0}) + (0.1 * \frac{İLETİM_t}{İLETİM_0})]$$

From the abbreviations given in the formulas;

- **t**: Invoice period for which the monthly settlement price will be calculated
- **0**: April 2022 period,
- **AUF**: Monthly Settlement Price for each resource,
- **ÜFE**: Monthly Producer Price Index,
- **KUR**: CBRT monthly average effective sales USD/TL rate,
- **API2**: Averages of “ICE Rotterdam Coal Futures” published during the month,
- **BOTAŞ**: The natural gas tariff valid for the power plants during the relevant period,
- **ÖTV**: The natural gas special consumption tax determined for the relevant period,
- **İLETİM**: Summation of the variable component and the averages of the fixed components of the TEİAŞ transmission system usage tariff determined for the relevant period.



Monthly Settlement Price Formula for Natural Gas Power Plants

$$AUF_DG_t = AUF_DG_0 * [(0.016 * \frac{\ddot{U}FE_t}{\ddot{U}FE_0}) + (0.058 * \frac{KUR_t}{KUR_0}) + (0.902 * \frac{BOTAS_{Ft}}{BOTAS_{F0}}) + (0.003 * \frac{\ddot{O}TV_t}{\ddot{O}TV_0}) + (0.021 * \frac{\dot{i}LET\dot{i}Mt}{\dot{i}LET\dot{i}M_0})]$$

Unchanged !



Monthly Settlement Price Formula for Imported Coal Power Plants

$$AUF_ithal_t = AUF_ithal_0 * [(0.031 * \frac{\ddot{U}FE_t}{\ddot{U}FE_0}) + (0.107 * \frac{KUR_t}{KUR_0}) + (0.846 * \frac{API2_t}{API20} * \frac{KUR_t}{KUR_0}) + (0.016 * \frac{\dot{i}LET\dot{i}Mt}{\dot{i}LET\dot{i}M_0})]$$



Additional Support Payment for Imported Coal Power Plants

$$AUF_f = 0.35 * (\min (FBB_v, API2_t) - 255) * KUR_t$$

Cost of the reported imported coal for the period of t.

Unchanged !

- Additional support will be provided in case the reported cost of imported coal is higher than 255 USD/ton.



Updated as of October 1st,2022



Monthly Settlement Price Formula for Local Coal Power Plants

$$AUF_Yerli_t = AUF_Yerli_0 * [(0.38 * \frac{\ddot{U}FE_t}{\ddot{U}FE_0}) + (0.6 * \frac{KUR_t}{KUR_0}) + (0.02 * \frac{\dot{i}LET\dot{i}Mt}{\dot{i}LET\dot{i}M_0})]$$

Monthly Settlement Price Formula for Other Power Plants

$$AUF_Diğer_t = AUF_Diğer_0 * [(0.3 * \frac{\ddot{U}FE_t}{\ddot{U}FE_0}) + (0.6 * \frac{KUR_t}{KUR_0}) + (0.1 * \frac{\dot{i}LET\dot{i}Mt}{\dot{i}LET\dot{i}M_0})]$$



Used until September 30th, 2022



Updated as of October 1st,2022

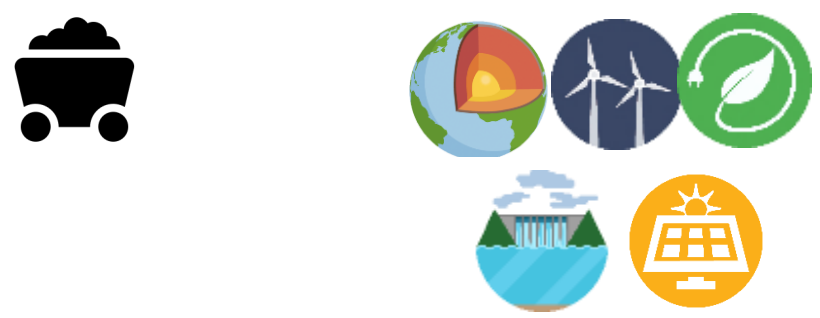
Monthly Settlement Price Formula for Other Power Plants

$$AUF_Diğer_t = AUF_Diğer_0 * [(0.38 * \frac{\ddot{U}FE_t}{\ddot{U}FE_0}) + (0.6 * \frac{KUR_t}{KUR_0}) + (0.02 * \frac{\dot{i}LET\dot{i}Mt}{\dot{i}LET\dot{i}M_0})]$$

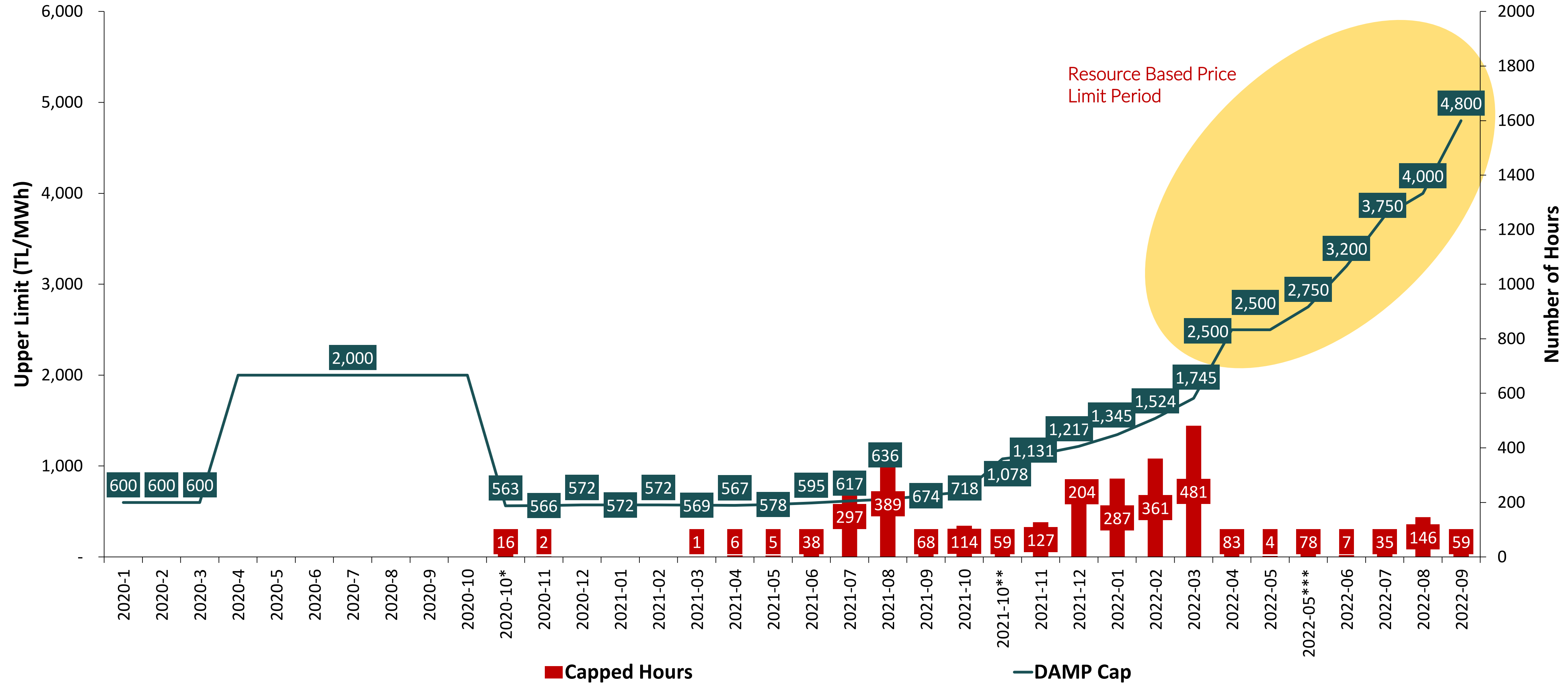


					
		Natural Gas, Fuel Oil, Naphta, LPG ve Diesel Power Plants	Imported Coal Power Plants	Local Coal and Renewable Power Plants	Market Cap
Announced	April MSP	2,500.0 TL/MWh	2,500.0 TL/MWh	1,200.0 TL/MWh	April 1 st : 2,500 TL/MWh
Calculated	May MSP	2,512.9 TL/MWh	2,732.0 TL/MWh	1,278.0 TL/MWh	May 19 th : 2,750 TL/MWh
Calculated	June MSP	2,896.1 TL/MWh	3,062.3 TL/MWh	1,370.0 TL/MWh	June 1 st : 3,200 TL/MWh
Calculated	July MSP	2,902.6 TL/MWh	3,556.5 TL/MWh	1,412.1 TL/MWh	July 1 st : 3,750 TL/MWh
Calculated	August MSP	3,172.0 TL/MWh	3,426.8 TL/MWh	1,452.5 TL/MWh	August 1 st : 4,000 TL/MWh
Forecast*	September MSP	4,618.9 TL/MWh	3,383.4 TL/MWh	1,481.7 TL/MWh	September 1 st : 4,800 TL/MWh
Announced	October MSP	4,500.0 TL/MWh	2,750.0 TL/MWh	2,050.0 TL/MWh	1,540.0 TL/MWh

! Monthly MSP (AUF) values will be calculated until the end of March 2023 according to the updated formulation for each resource.



Upper Limits Applied in the Electricity Markets



Results of Resource Based Price Limits Application

- Imported coal power plants, which have increased fuel costs due to the recent developments in the global markets, were able to remain operational in the system with the help of the mechanism.
- Inline with the main purpose of the mechanism, the support fee obtained from the revenues of low-marginal cost power plants were transferred to the designated retail companies.
- The profitability of the local coal and renewable energy power plants included in this mechanism has decreased.
- The most important negative effect of the mechanism was the decrease in trading options in the bilateral agreements. While no contracts were issued on the OTC since the beginning of the application, only 2 transactions were made on the PFM (VEP) side.

V E P	Contract Date	Contract Code	Period Start Date	Period End Date	Settlement Volume (Lot)	Price (TL/MWh)
	2022-05-05	EBBOM0522 - 07	2022-05-06	2022-05-07	100	1,750.0
	2022-05-27	EBM0622	2022-06-01	2022-06-30	70	2,300.0
O T C	Contract Date	Contract Code	Period Start Date	Period End Date	Settlement Volume (Lot)	Price (TL/MWh)
	-	-	-	-	-	-
	-	-	-	-	-	-
	-	-	-	-	-	-